

WHAT IS CLAIMED IS:

1. An immunogenic composition to induce an immune response against West Nile virus (WNV) in an animal susceptible to WNV comprising a vector comprising a recombinant virus or DNA plasmid that encodes and expresses *in vivo* in the animal WNV E; WNV prM and
5 E; WNV M and E; WNV prM, WNV M and E, WNV polyprotein prM-E, WNV polyprotein M-E, or WNV polyprotein prM-M-E.
2. The immunogenic composition of claim 1 wherein the recombinant virus is a recombinant adenovirus, herpesvirus or poxvirus.
3. The immunogenic composition of claim 2 wherein the recombinant virus is a
10 recombinant poxvirus.
4. The immunogenic composition of claim 3 wherein the recombinant poxvirus is a recombinant avipox virus.
5. The immunogenic composition of claim 4 wherein the recombinant avipox virus is a canarypox or fowlpox virus.
- 15 6. The immunogenic composition of claim 5 wherein the canarypox virus is ALVAC and the fowlpox virus is TROVAC.
7. The immunogenic composition of claim 1 wherein the nucleic acid molecule is a coding frame encoding polyprotein prM-M-E.
8. The immunogenic composition of claim 5 wherein the nucleic acid molecule is a
20 coding frame encoding polyprotein prM-M-E
9. The immunogenic composition of claim 6 wherein the nucleic acid molecule is a coding frame encoding polyprotein prM-M-E
10. The immunogenic composition of claim 1 wherein the nucleic acid molecule comprises nucleotides 466-741, 742-966 and 967-2469 of GenBank AF196835 encoding WNV
25 prM, M and E, respectively.
11. The immunogenic composition of claim 1 wherein the nucleic acid molecule comprises nucleotides 466-2469 of GenBank AF196835 (SEQ ID NO: 66) encoding WN protein prM-M-E.
12. The immunogenic composition of claim 1 wherein the nucleic acid molecule
30 comprises nucleotides 421-2469 of GenBank AF196835 (SEQ ID NO: 66) encoding WN protein prM-M-E and the signal peptide of prM.

13. The immunogenic composition of claim 1, further comprising an adjuvant.

14. The immunogenic composition according to claim 10, wherein the adjuvant is a carbomer.

15. The immunogenic composition of claim 1 further comprising an antigen or immunogen or epitope thereof of a pathogen other than WNV of the animal, or a vector that contains and expresses *in vivo* in the animal a nucleic acid molecule encoding the antigen, immunogen or epitope thereof, or an inactivated or attenuated pathogen other than WNV of the animal.

16. The immunogenic composition of claim 1, wherein the animal is a cat or a horse.

17. A method for inducing an immunological or protective immune response against WNV in an animal comprising administering to the animal the immunogenic or vaccine composition according to claim 1.

18. A method for inducing an immunological response against WNV in an animal comprising administering to the animal the immunogenic or vaccine composition according to claim 17.

19. The method according to claim 18 wherein the adjuvant comprises a carbomer adjuvant.

20. A method for inducing an immunological response against WNV in an animal and against another pathogen of the animal comprising administering to the animal the immunogenic composition according to 19.

21. A method for inducing an immunological response against WNV in an animal comprising administering to the animal (a) the immunogenic composition according to claim 1, and (b) a WNV isolated antigen, immunogen or epitope thereof, wherein (a) is administered prior to (b) in a prime-boost regimen, or (b) is administered prior to (a) in a prime-boost regimen, or (a) and (b) are administered together, either sequentially or in admixture.

22. The method of any of claims 17, 20 or 21, wherein the animal is a cat or a horse.

23. A differential diagnosis method comprising administering to animals an immunogenic composition of claim 1, and/or a WNV antigen, immunogen or epitope, and testing the animals for presence or absence of a WNV protein or antibody thereto not expressed by the immunogenic or vaccine composition or not administered as the WNV antigen, immunogen or epitope.

24. The method of claim 23, wherein the animal is a cat or a horse.

25. A kit for performing the method of claim 23 comprising (a) and (b) in separate containers, optionally with instructions for admixture and/or administration.

26. A kit for performing the method of claim 24 comprising the immunogenic composition and/or the WNV antigen, immunogen or epitope, and an assay for testing for the presence or absence of the WNV protein, in separate containers, optionally with instructions for administration of the immunogenic or vaccine composition and/or the WNV antigen, immunogen or epitope, and/or for performing the assay.

27. A kit comprising (a) the immunogenic composition according to claim 1, and (b) the antigen or immunogen or epitope thereof of a pathogen other than WNV of the animal, or the vector that contains and expresses *in vivo* in the animal a nucleic acid molecule encoding the antigen, immunogen or epitope thereof, or the inactivated or attenuated pathogen other than WNV of the animal, wherein (a) and (b) are in separate containers, and the kit optionally contains instructions for admixture and/or administration of (a) and (b).

28. The kit of claim 25 or 27, wherein the animal is a cat or a horse.

29. A plasmid that encodes and expresses *in vivo* in an animal susceptible to West Nile Virus WNV E; WNV prM and E; WNV M and E; WNV prM, WNV M and E, WNV polyprotein prM-E, WNV polyprotein M-E, or WNV polyprotein prM-M-E.